

CLAIMS

1. A carbon fiber spun yarn, which is a spun yarn of a carbon fiber that has an average (002)-interlayer spacing of 0.340 - 0.380 nm as measured by X-ray diffraction method, has a specific gravity of 1.55 –
5 1.80 as measured by a density gradient tube method, a hydrogen-to carbon atomic ratio (H/C) as measured by elementary analysis of at most 0.1 and contains 3 - 30 wt.% of carbon fiber having a fiber length of at least 150 mm, wherein the spun yarn has a weight per 1000 m (tex) of 30 - 150 g, a number of primary twist of 50 - 400 turns/m and a
10 tensile strength of at least 0.15 N/tex.
2. A carbon fiber spun yarn according to Claim 1, wherein the carbon fiber is an isotropic pitch-based carbon fiber.
- 15 3. A carbon fiber spun yarn according to Claim 1, wherein the carbon fiber is a polyacrylonitrile-based carbon fiber or a rayon-based carbon fiber.
4. A carbon fiber spun yarn according to any one of Claims 1 - 3,
20 containing 70 - 97 wt.% of carbon fiber having a fiber length of 50 - 150 mm.
5. A carbon fiber spun yarn according to any one of Claims 1 - 4, where the carbon fiber has an average diameter of 5 - 20 μm .
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6. A carbon fiber spun yarn according to any one of Claims 1 - 5, which is in a single-twist state.

7. A carbon fiber woven fabric, comprising at least 30 wt.% thereof of a carbon fiber spun yarn according to any one of Claims 1 - 6.
- 5 8. A carbon fiber woven fabric according to Claim 7, having a fiber area weight (FAW) of at least 50 g/m² and below 200 g/m², and a thickness of 0.20 - 0.60 mm.
9. A carbon fiber woven fabric according to Claim 7 or 8, having a
10 volume resistivity of 20 - 1500 $\mu\Omega\cdot\text{m}$.
10. A carbon fiber woven fabric according to any one of Claims 7 - 9, which is in a state of plain weave.
- 15 11. A gas diffuser for a solid polymer electrolyte fuel cell, comprising a carbon fiber woven fabric according to any one of Claims 7 - 10.